a liquid to form a suspension, the matrix material phase being insoluble in the liquid, and this suspension is then spray dried.

24. Process for the preparation of a prolonged-release formulation in the form of a matrix material-containing compound comprising:

an active substance phase comprising at least one active substance; and

a matrix material phase comprising at least one polymer or lipid, wherein in case of cellulose materials these cellulose materials are cellulose derivatives, and wherein the formulation is in the form of spray-dried particles in which the matrix material is incoherent and the active substance phase is coherent, wherein the phases of the formulation are suspended or suspended and dissolved together in a liquid to form a suspension, the matrix material phase being insoluble in the liquid, and this suspension is then spray dried.

25. Formulation according to claim 8, wherein the matrix material comprises at least one selected from the group consisting of synthetic mono-, di- and triglycerides as individual substances or in a mixture, hydrogenated fat, glycerol tri-fatty acid esters, glycerol trilaurate, glycerol myristate, glycerol palmitate, glycerol stearate and glycerol behenate, cetyl palmitate, cera alba and beeswax.- -

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1, 2, 4-9, 11-13 and 15-25 are pending in the application.

New claims 19 and 20 are supported by original claim 1. New claims 21 and 22 are supported by original claim 2. New claims 23 and 24 are supported by original claim 13. Basis for the language "prolonged-release" and "spray-dried" in claims 1, 2, 13, and 19-24 can be found in the present specification including at page 1, line 16, and page 23, line 6. New claim 25 is supported by original claim 8. No new matter has been added.

The rejection of claims 1, 3, 7-8 and 10 under 35 U.S.C. § 112, second paragraph, is obviated by the amendments shown above. Accordingly, withdrawal of the Section 112, second paragraph, rejection is respectfully requested.

The rejection of claim 8 under 35 U.S.C. § 112, second paragraph, is obviated by the amendments shown above. Accordingly, withdrawal of the Section 112, second paragraph, rejection is respectfully requested.

The objection to claims 13, 14 and 16 for improper antecedent basis is obviated by the amendments shown above. Accordingly, withdrawal of the objection is respectfully requested.

The rejection of claims 17 and 18 under 35 U.S.C. § 101 is obviated by the amendments shown above. Accordingly, withdrawal of the Section 101 rejection is respectfully requested.

The rejection of claims 1-11 and 13-17 under 35 U.S.C. § 102(b) over McClelland is respectfully traversed. Claims 1-11 and 13-17 are not anticipated by McClelland for the following reasons.

The present invention provides spray-dried particles, which can be easily compacted into a larger matrix, pellets or tablets as desired because of their unique flow characteristics. See page 11, lines 16-28 and page 25, lines 5-27, of the present specification. The spray-dried particles have an incoherent matrix material phase and a coherent active substance and/or excipient phase - in other words, distinct particles of the polymer matrix are embedded in the excipient or active substance phase as shown in the Figures attached to the present specification.

McClelland describes a process completely different from the present invention. McClelland prepares the microparticles by extrusion. McClelland shows only the general process of drying described in the textbooks. This is evident in the sentence "The resultant spherical multiparticulates are dried if necessary." (page 1, lines 15 and 16). McClelland does not teach "spray drying" in the same manner as the present invention to produce particles having an incoherent matrix material phase and a coherent active substance and/or excipient phase, which exhibit unexpectedly good flow characteristics.

McClelland teaches the efficiency of the spheronisation process by incorporating a charged resin (page 1, lines 11 and 12) to form "highly spherical multiparticulates" (page 2, lines 31 and 32). In contrast, the present invention prepares a product which has the

property of allowing production of prolonged release units by direct compression due to unique flow properties and compaction properties of the spray dried particles.

McClelland describes his formulation to be used directly as particles or coating the particles (page 2, lines 32 and 33). McClelland does not teach particles produced by spheronisation which exhibit the properties and structure of the particles produced according to the present invention.

For these reasons, McClelland cannot anticipate the claimed invention. Accordingly, withdrawal of the Section 102 rejection is respectfully requested.

The rejection of claims 1-3, 8-11 and 13-17 under 35 U.S.C. § 102(b) over Lang is respectfully traversed. Claims 1-3, 8-11 and 13-17 are not anticipated by Lang for the following reasons.

The object of Lang is to provide a tableting auxiliary which "permits tablets to be produced directly and furthermore makes it possible to reduce the amount of tabletting auxiliary" (col 1 lines 43-45). These tablets are intended for fast disintegration according to the Pharmacopeia as can be seen by the incorporation of a tablet disintegrating agent (component C of the invention, e.g. col 1 line 63 and col. 2 line 22). The required disintegration time according to the Pharmacopeia is less than 15 minutes. Lang emphasizes "the excellent disintegration" of his product (col. 3 line 20). In the examples a disintegration time of 2-3 minutes is disclosed (col. 4, line 53).

In contrast, the present invention is not intended for fast disintegration. The present invention is intended for prolonged release over hours without being disintegrated. There is no teaching in Lang how to achieve this. Thus, the products taught by Lang are very different from the present invention.

In addition, there is no teaching about spray-drying in Lang to produce particles according to the present invention. Lang describes only a standard process for drying. It is mainly referred to textbook knowledge, i.e. to process the mixture "by a conventional method, for example spray granulation, spray drying" (col. 2, lines 58-60).

For these reasons, Lang cannot anticipate the claimed invention. Accordingly, withdrawal of the Section 102 rejection is respectfully requested.

The rejection of claims 1-12 and 14-18 under 35 U.S.C. § 102(e) over Sparks is respectfully traversed. Claims 1-12 and 14-18 are not anticipated by Sparks for the following reasons.

Sparks describes "a prolonged release tablet for the release through a differentially permeable membrane" (abstract). A Prerequisite of Sparks is a "membrane surrounding the core" (col. 3 line 11 and 25). Thus, Sparks teaches a prolonged release devise working on Fick's law of diffusion.

In contrast, the present invention has no membrane. The present invention relates to a matrix system releasing drug according to the square root law of Higuchi. Thus, the product of Sparks is different from the present invention in:

a) design (membrane with reservoir inside versus no membrane) and

b) release mechanisms (Fick law versus Higuchi release profile).

In addition, Sparks' tablet core has a rapid dissolution rate, i.e "time to 90% dissolution of not more than 30 minutes" (col. 3 lines 63-64). In contrast the present invention is characterized by no disintegration up to hours, i.e. prolonged release.

Sparks prepares the tablet core (prior to coating) by a wet granulation followed by direct compression. The background section of the present specification discloses that wet granulation is a time-consuming, costly process. The present invention avoids the costly wet granulation process by admixing the novel product (compounds) directly to the drug or producing a drug-containing product. Thus, Sparks teaches in a direction opposed to the present invention.

For these reasons, Sparks cannot anticipate the claimed invention. Accordingly; withdrawal of the Section 102 rejection is respectfully requested.

The rejection of claims 1-18 under 35 U.S.C. § 102(e) over Motta is respectfully traversed. Claims 1-18 are not anticipated by Motta for the following reasons.

Motta processes excipients in a different way than the present invention. Motta mixes lactose (which is known to be a suitable direct compression agent) with a drug (indomethacin) and the usual additives, talc and magnesium stearate, and compresses the composition in a specific way (example 1). Thus, each particle of the mixture consists only of one excipient (e.g. pure lactose particles), which is a standard mixture known in tabletting technology, but undergoing Motta's treatment.

Example 2 of Motta is a "disintegrating granulation process". The excipients are mixed, directly compressed to a tablet and then milled (= disintegrated) to form granules for final use. In contrast, in the present invention, spray-dried particles can be compressed to form a tablet.

In addition, producing a granule via a tablet as intermediate step does not require a homogenous flow of the product during compression and the tablet content does not need to be uniform because content uniformity is achieved by mixing the granules obtained from milling. In contrast, the present invention is capable of being compressed to directly form tablets with content uniformity because of the excellent flow characteristics of the spray-dried particles.

For these reasons, Motta cannot anticipate the claimed invention. Accordingly, withdrawal of the Section 102 rejection is respectfully requested.

The rejection of claims 1-18 under 35 U.S.C. § 102(e), or in the alternative, under 35 U.S.C. § 103 over Lang in view of Motta is respectfully traversed. Claims 1-18 are not anticipated or obvious over the theoretical combination of Lang and Motta for the following reasons.

The products of Motta are conventional tablets or pellets, which obtain desired properties using sonic treatment. In contrast, the present invention relates to spray-dried particulate compounds which can be further directly processed to tablets or pellets. Thus, the compound as intermediate product to various dosage forms is claimed. Such an intermediate product is not described or claimed by Motta.

A novel part of the present invention is to achieve a direct compression of the spray-dried particles at simultaneously high polymer content and thereby avoiding undesirable traditional processes.

From the literature it is known that production of prolonged release tablets with a high content of polymer (typically above 15%) can only be performed by applying special methods which are time consuming, costly, potentially hazardous etc. for the product. Time-consuming and costly is wet granulation (e.g. by Lang, col. 2 line 59), hazardous are wet granulation (e.g. hydrolysis of sensitive drugs) and sonic treatment as performed by Motta (decomposition of sensitive protein drugs such as Follicle Stimulating Hormone FSH). Combining the teachings of Lang and Motta would therefore not lead to the present invention, which avoids the costly, time-consuming and hazardous methods of Lang and Motta.

For these reasons, no combination of Lang and Motta teach or suggest the claimed invention. Accordingly, withdrawal of the Section102 and 103 rejections is respectfully requested.

In view of all of the objections and rejections of record having been addressed, it is believed that the present application is in condition for allowance and Notice to that effect is respectfully requested.

Respectfully submitted,

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